

Message Text

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ORIGIN EPA-04

INFO OCT-01 EUR-12 IO-13 ISO-00 OES-06 FEA-01 ACDA-10
CEQ-01 CIAE-00 DOTE-00 HEW-06 HUD-02 INR-07 INT-05
L-03 NSAE-00 NSC-05 NSF-02 OIC-02 PA-02 PM-04 PRS-01
SAJ-01 SP-02 SS-15 TRSE-00 USIA-15 DODE-00 AID-05
ERDA-07 COME-00 EB-07 SIG-02 /141 R

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APPROVED BY EUR/RPM:ESCAMPBELL
EPA/CCMS:FAHARRIS
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FM SECSTATE WASHDC
TO ALL NATO CAPITALS
INFO USMISSION OECD PARIS
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UNCLAS STATE 009867

E.O. 11652: N/A

TAGS: CCMS, SENV

SUBJECT: CCMS: FLUE GAS DESULFURIZATION PILOT STUDY
MEETING, LONDON, FEB 2-3, 1977

REF: (76) STATE 304378

1. REQUEST POSTS PASS FOLLOWING "SURVEY OF FLUE GAS
DESULFURIZATION TECHNOLOGY" TO APPROPRIATE HOST GOVT.
ENERGY/ENVIRONMENT OFFICIALS. SURVEY WILL SERVE AS
BASIS FOR DISCUSSIONS AT FEB 2-3 FGD MEETING IN LONDON
(INVITATION CONTAINED REFTTEL). PLEASE ADVISE DEPT,
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EMBASSY LONDON, AND USNATO OF HOST GOVT EXPERTS/OFFICIALS
ATTENDING MTG. ASAP.

2. FOR OTTAWA, COPENHAGEN, BOWN, THE HAGUE, ROME, OSLO,
LONDON: FOLLOWING EXPERTS WHO ATTENDED ORGANIZATIONAL
MEETING IN SAARBRUCKEN, FRG, SHOULD HAVE RECEIVED COPY
OF SURVEY BY MAIL FROM USEPA. REQUEST EMBASSY VERIFY
THAT SURVEY HAS BEEN RECEIVED, OR PASS ON COPY IF NECESSARY.

OTTAWA: MARTIN E. RIVERS, ENVIRONMENT CANADA, OTTAWA

COPENHAGEN: B. COLLIANDER, I/S MIDTKRAFT, SPANIEN 19,
DK 800 ARHUS

BONN: HANS-L. DREISSIGACKER, GUNTER REIMANN, MINISTRY OF
THE INTERIOR, BONN

PETER DAVIDS, UMWELTBUNDESAMT, BERLIN

THE HAGUE: RIK BOSMA, ENERGY CENTER, PETTEN

ROME: FABRIZIO BRUNER, CNR, ROME

OSLO: HERMAN KOLDERUP, OLAV ERGA, UNIVERSITY OF
TRONDHEIM

ARVID TOKERUD, NORSK VIFTEFABRIK, OSLO

LONDON: J. BETTELHEIM, CENTRAL ELECTRICITY GENERATING
BOARD, LEATHERHEAD, SURREY

M.F. TUNNICLIFFE, HEALTH AND SAFETY EXECUTIVE,
QUEEN ANNE'S CHAMBERS

3. SURVEY OF FLUE GAS DESULFURIZATION TECHNOLOGY

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INSTRUCTIONS FOR COMPLETING SURVEY FORM

INTRODUCTION:

THIS SURVEY FORM WILL BE USED TO COLLECT DETAILED INFORMATION FROM FLUE GAS DESULFURIZATION SYSTEMS APPLIED TO FOSSIL FUEL FIRED POWER PLANTS IN SEVERAL COUNTRIES. SINCE VARIOUS COUNTRIES WILL HAVE DIFFERENT UNITS OF MEASUREMENT, THE FORM PROVIDES A SPACE TO WRITE DOWN THE UNITS AFTER EACH NUMBER. WITHOUT APPROPRIATE UNITS, THE REPORTED DATA ARE NOT TOO USEFUL. PLEASE CHECK CAREFULLY.

EXAMPLE: COAL HEATING VALUE: 9500 UNITS: BTU/LB.

SECTION 1. GENERAL DESCRIPTION:

THIS SECTION REQUESTS GENERAL INFORMATION ABOUT THE PLANT AND FGD SYSTEM TYPE AND LOCATION. IT SHOULD BE COMPLETED FOR EACH SEPARATE SYSTEM SURVEYED EVEN IF AT THE SAME LOCATION AS ANOTHER FGD SYSTEM. FGD SYSTEM REFERS TO A GENERIC NAME SUCH AS LIMESTONE SCRUBBING.

SECTION 2. BOILER DATA:

THIS SECTION REQUESTS SPECIFIC INFORMATION ABOUT THE BOILER. IT SHOULD BE COMPLETED FOR EACH SYSTEM SURVEYED. BOILER CAPACITY FACTOR IS DEFINED AS POWER PRODUCED/POTENTIAL PRODUCTION.

SECTION 3. EMISSIONS REGULATIONS:

THIS SECTION REQUESTS INFORMATION ABOUT THE EMISSION REGULATIONS THAT APPLY TO THE PLANT BEING SURVEYED. IT SHOULD BE COMPLETED FOR EACH SYSTEM SURVEYED.
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INCLUDE THE DATE OF COMPLIANCE WITH THE REGULATION.

SECTION 4. FGD SYSTEM:

THIS SECTION REQUESTS DESCRIPTIVE INFORMATION ABOUT THE SCRUBBER SYSTEM AND SHOULD ALLOW THE READER TO THOROUGHLY UNDERSTAND SYSTEM OPERATION. PORTIONS OF THIS SECTION WILL NOT APPLY TO ALL SYSTEMS.

4.2 SO₂ SCRUBBING AGENT:

DESCRIBE THE COMPOUND ACTING AS THE MAIN REACTANT WITH SO₂ IN THE SCRUBBING SOLUTION. PRESENT ITS COMPOSITION ON AS RECEIVED BASIS. STOICHIOMETRIC REQUIREMENT REFERS TO THE AMOUNT REQUIRED TO ABSORB THE SO₂ IF THE ABSORBENT IS 100 PERCENT EFFECTIVE.

4.3 REGENERATION AGENT:

THIS REFERS TO SYSTEMS THAT CHEMICALLY REGENERATE THE CIRCULATING SLURRY (E.G., DOUBLE ALKALI). GIVE COMPOSITION ON AS RECEIVED BASIS.

4.4 BY-PRODUCT OR SLUDGE:

THIS REFERS TO THE SLUDGE COMPOSITION AS IT PROCEEDS TO DISPOSAL.

4.5 BY-PRODUCT NUMBER 2:

THIS SECTION IS FOR SYSTEMS THAT CAN GENERATE MORE THAN ONE BY-PRODUCT (WELLMAN-LORD).

4.6 BY-PRODUCT RECOVERY PROCESS:

THIS REFERS TO SYSTEMS THAT PRODUCE MARKETABLE
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BY-PRODUCTS (E.G. WELLMAN-LORD, CHIYODA).

4.7 & 4.8 SLUDGE FIXATION PROCESS AND CHEMICALS USED:

THIS REFERS TO SYSTEMS THAT HAVE A SEPARATE SLUDGE
FIXATION SYSTEM (I.E. IUCS, DRAVO).

4.9 FGD EQUIPMENT DATA:

THE FIRST STAGE SCRUBBER IS THE FIRST SCRUBBER IN THE
TRAIN. USUALLY THIS SCRUBBER IS USED FOR PARTICULATE
REMOVAL. SOME SYSTEMS WILL HAVE ONLY ONE SCRUBBER PER
TRAIN SO SECTION 4.9.2 WILL BE LEFT BLANK.

SECTION 5: COSTS:

THIS SECTION REQUESTS INSTALLED CAPITAL COSTS FOR
VARIOUS PROCESS AREAS AND ANNUAL COSTS. IT SHOULD BE
COMPLETED FOR EACH SYSTEM, INCLUDING CURRENCY AND YEAR.
ALTERNATE COST BREAKDOWNS MAY BE SUBMITTED IF AVAILABLE.

SECTION 6: PERFORMANCE HISTORY:

THIS SECTION REQUESTS EQUIPMENT PERFORMANCE HISTORY AND
SYSTEM RELIABILITY INFORMATION. IT SHOULD BE COMPLETED
FOR EACH SYSTEM. (END OF INSTRUCTIONS)

4. FLUE GAS DESULFURIZATION SURVEY FORM:

1. GENERAL DESCRIPTION:

- 1.1 COMPANY:
 - 1.2 PLANT NAME:
 - 1.3 PRINCIPAL PLANT PRODUCTS:
 - 1.4 PLANT LOCATION:
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1.5 BOILER GROSS GENERATING CAPACITY: & UNITS:

1.6 TYPE OF FGD SYSTEM:

1.7 NUMBER OF SCRUBBER TRAINS:

1.8 PREPARER'S NAME:

1.8.1 MAILING ADDRESS: AND PHONE:

2. BOILER DATA:

2.1 BOILER IDENTIFICATION NUMBER:

2.2 MAXIMUM CONTINUOUS HEAT INPUT: & UNITS:

2.3 MAXIMUM CONTINUOUS NET GENERATING CAPACITY: & UNITS:

2.4 ACTUAL FLUE GAS FLOW RATE: & UNITS:

2.4.1 TEMPERATURE: & UNITS:

- 2.5 BOILER MANUFACTURER:
- 2.6 YEAR PLACED IN SERVICE:
- 2.7 TYPE SERVICE (PEAKING, BASE LOAD):
- 2.8 STACK HEIGHT: & UNITS:
- 2.9 BOILER OPERATION HRS/YEAR: & YEAR:
- 2.10 BOILER CAPACITY FACTOR:
- 2.11 RATIO FLY ASH/BOTTOM ASH:

2.12 COAL:

- 2.12.1 HEATING VALUE: & UNITS:
- 2.12.2 SULFUR CONTENT, PERCENT BY WEIGHT:
- 2.12.3 ASH CONTENT, PERCENT BY WEIGHT:

2.13 OIL:

- 2.13.1 GRADE: & HEATING VALUE: & UNITS:
- 2.13.2 SULFUR CONTENT, PERCENT BY WEIGHT:
- 2.13.3 ASH CONTENT, PERCENT BY WEIGHT:

2.14 FLY ASH REMOVAL EQUIPMENT:

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- 2.14.1 TYPE:
- 2.14.2 MANUFACTURER:
- 2.14.3 EFFICIENCY, PERCENT BY WEIGHT:
- 2.14.4 EMISSION RATE: & UNITS:

3. EMISSION REGULATIONS:

FOR FOLLOWING POLLUTANTS STATE RATE: & UNITS:

- 3.1 SO₂:
- 3.2 PARTICULATE:
- 3.3 NO_X
- 3.4 OTHER:

4. FGD SYSTEM:

4.1 PROCESS NAME:

- 4.1.1 SUPPLIER OR DESIGN CO.:
- 4.1.2 PROCESS DESCRIPTION: (ATTACH SKETCH OR SUPPLEMENTAL INFORMATION).

4.2 SO₂ SCRUBBING (ABSORPTION, ADSORPTION) AGENT:

- 4.2.1 NAME:
- 4.2.2 CHEMICAL COMPOSITION:

FOR FOLLOWING COMPONENTS STATE CHEMICAL NAME: AND PERCENT BY WEIGHT:

4.2.3 MAJOR COMPONENT:
4.2.4 MINOR COMPONENT A:
4.2.5 MINOR COMPONENT B:
4.2.6 MINOR COMPONENT C:
4.2.7 AMOUNT USED/STOICHIOMETRIC REQUIREMENT:

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4.3 REGENERATION AGENT:

4.3.1 NAME:
4.3.2 CHEMICAL COMPOSITION:

FOR FOLLOWING COMPONENTS STATE CHEMICAL NAME:
AND PERCENT BY WEIGHT:

4.3.3 MAJOR COMPONENT:
4.3.4 MINOR COMPONENT A:
4.3.5 MINOR COMPONENT B:
4.3.6 MINOR COMPONENT C:
4.3.7 AMOUNT REQUIRED/STOICHIOMETRIC REQUIREMENT:

4.4 BY-PRODUCT OR SLUDGE:

4.4.1 NAME:
4.4.2 CHEMICAL COMPOSITION:

FOR FOLLOWING COMPONENTS STATE CHEMICAL NAME:
AND PERCENT BY WEIGHT:

4.4.3 MAJOR COMPONENT:
4.4.4 MINOR COMPONENT A;
4.4.5 MINOR COMPONENT B:

4.4.6 H₂O
4.4.7 AMOUNT GENERATED/YR.: & UNITS:
4.4.8 DISPOSAL METHOD:

4.5 BY-PRODUCT NUMBER 2:

4.5.1 NAME:
4.5.2 CHEMICAL COMPOSITION:

FOR FOLLOWING COMPONENTS STATE CHEMICAL NAME:
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AND PERCENT BY WEIGHT:

4.5.3 MAJOR COMPONENT:

4.5.4 MINOR COMPONENT A;

4.5.5 MINOR COMPONENT B:

4.5.6 H₂O

4.5.7 AMOUNT GENERATED/YR: & UNITS:

4.5.8 DISPOSAL METHOD:

4.6 BY-PRODUCT RECOVERY PROCESS:

4.6.1 NAME:

4.6.2 VENDOR:

4.6.3 PROCESS DESCRIPTION:

4.7 SLUDGE FIXATION PROCESS:

4.7.1 NAME:

4.7.2 VENDOR:

4.7.3 PROCESS DESCRIPTION:

4.8 FIXATION CHEMICALS:

4.8.1 NAME:

4.8.2 QUANTITY: AND UNITS:

4.9 FGD EQUIPMENT DATA:

4.9.1 FIRST STAGE SCRUBBER:

4.9.1.1 TYPE:

4.9.1.2 LIQUID/GAS RATIO: & UNITS:

4.9.1.3 GAS VELOCITY THROUGH SCRUBBER: & UNITS:

4.9.1.4 MATERIAL OF CONSTRUCTION:

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4.9.1.5 TYPE OF LINING:

4.9.1.6 INTERNALS:

4.9.1.7 TYPE (FLOATING BED, FIXED BED, ETC.):

4.9.1.8 NUMBER OF STAGES:

4.9.1.9 TYPE AND SIZE OF PACKING MATERIAL:

4.9.1.10 PACKING HEIGHT PER STAGE: AND UNITS:

4.9.1.11 MATERIAL OF CONSTRUCTION, PACKING:

4.9.1.12 MATERIAL OF CONSTRUCTION, SUPPORTS:

4.9.2 SECOND STAGE SCRUBBER:

4.9.2.1 TYPE (TOWER/VENTURI)

4.9.2.2 LIQUID/GAS RATIO: & UNITS:

4.9.2.3 GAS VELOCITY THROUGH (SUPERFICIAL VELOCITY):

SCRUBBER: & UNITS:

4.9.2.4 MATERIAL OF CONSTRUCTION:

4.9.2.5 TYPE OF LINING:

4.9.2.6 INTERNALS:

4.9.2.7 TYPE (FLOATING BED, MARBLE BED, ETC.):

4.9.2.8 NUMBER OF STAGES:

4.9.2.9 TYPE AND SIZE OF PACKING MATERIAL:

4.9.2.10 PACKING THICKNESS PER STAGE:

4.9.2.11 MATERIAL OF CONSTRUCTION SUPPORTS:

4.9.3 CLEAR WATER TRAY (AT TOP OF SCRUBBER)

4.9.3.1 TYPE:

4.9.3.2 L/G RATIO: AND UNITS:

4.9.3.3 SOURCE OF WATER:

4.9.4 DEMISTER:

4.9.4.1 TYPE (CHEVRON, ETC.):

4.9.4.2 NUMBER OF PASSES (STAGES):

4.9.4.3 SPACE BETWEEN VANES: & UNITS:

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4.9.4.4 ANGLE OF VANES:

4.9.4.5 TOTAL DEPTH OF DEMISTER: & UNITS:

4.9.4.6 DIAMETER OF DEMISTER: & UNITS:

4.9.4.7 DISTANCE BETWEEN TOP OF PACKING AND

BOTTOM OF DEMISTER: & UNITS:

4.9.4.8 POSITION (HORIZONTAL, VERTICAL):

4.9.4.9 MATERIAL OF CONSTRUCTION:

4.9.4.10 METHOD OF CLEANING:

4.9.4.11 SOURCE OF WATER:

4.9.4.12 FLOW RATE DURING CLEANINGS: & UNITS:

4.9.4.13 FREQUENCY AND DURATION OF CLEANING: & UNITS:

4.9.5 REHEATER:

4.9.5.1 TYPE:

4.9.5.2 HEAT LOAD: & UNITS:

4.9.5.3 HEAT TRANSFER SURFACE AREA: & UNITS:

4.9.5.4 TEMPERATURE OF GAS:

IN: & UNITS:

OUT: & UNITS:

4.9.5.5 HEATING MEDIUM:

4.9.5.6 TEMPERATURE: & UNITS:

4.9.5.7 PRESSURE: & UNITS:

4.9.5.8 FLOW RATE: & UNITS:

4.9.5.9 REHEATER TUBES, TYPE AND MATERIAL

OF CONSTRUCTION:

4.9.5.10 REHEATER LOCATION WITH RESPECT TO DEMISTER:

4.9.6 SCRUBBER TRAIN PRESSURE DROP DATA:

STATE UNITS FOR EACH OF FOLLOWING:

4.9.6.1 FIRST STAGE SCRUBBER:

4.9.6.2 SECOND STAGE SCRUBBER:

4.9.6.3 CLEAR WATER TRAY:

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4.9.6.4 DEMISTER:

4.9.6.5 REHEATER:

4.9.6.6 DUCTWORK:

4.9.6.7 TOTAL FGD SYSTEM:

4.10 FRESH WATER ADDED/HR: & UNITS:

4.10.1 PER MOLE OF SO₂ REMOVED: & UNITS:

4.11 BYPASS SYSTEM:

CAN FLUE GAS BE BYPASSED?

4.12 SLURRY DATA:

STATE PH AND PERCENT SOLIDS FOR FOLLOWING:

4.12.1 FRESH SLURRY TO SCRUBBER:

4.12.1 RECIRCULATING SLURRY:

4.12.2 WASTE SLURRY:

4.13 SPENT SLURRY SYSTEM:

4.13.1 CLARIFIERS

4.13.1.1 NUMBER

4.13.1.2 DIAMETER: & UNITS:

4.13.2 ROTARY VACUUM FILTERS:

4.13.2.1 NUMBER:

4.13.2.2 CLOTH AREA: & UNITS:

4.13.2.3 CAPACITY (WET CAKE): & UNITS:

5. COSTS: CURRENCY: & YEAR:

5.1 CAPITAL COSTS:

5.1.1 SCRUBBER:

5.1.2 ABSORBENT/REGENERATION:

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5.1.3 SLUDGE DISPOSAL:

5.1.4 SITE IMPROVEMENTS:

5.1.5 LAND, ROADS, TRACKS, SUBSTATION:

5.1.6 ENGINEERING COSTS:

5.1.7 CONTRACTOR'S FEE:

5.1.8 INTEREST ON CAPITAL DURING CONSTRUCTION:

5.1.9 TOTAL:

5.2 ANNUAL COSTS:

5.2.1 INTEREST:

5.2.2 DEPRECIATION:

5.2.3 INSURANCE AND TAXES:

5.2.4 LABOR AND OVERHEAD:

5.2.5 TOTAL FIXED:

5.2.6 RAW MATERIAL:

5.2.7 UTILITIES:

5.2.7.1 ELECTRICITY: & UNITS:

5.2.7.2 WATER: & UNITS:

5.2.7.3 STEAM: & UNITS:

5.2.7.4 FUEL: & UNITS:

5.2.8 MAINTENANCE:

5.2.9 OTHER:

5.2.10 TOTAL VARIABLE:

5.2.11 TOTAL ANNUAL COST (FIXED & VARIABLE)

5.3 BY-PRODUCT CREDIT:

5.3.1 BY-PRODUCT 1:

5.3.2 BY-PRODUCT 2:

5.4 NET ANNUAL COST:

6. PERFORMANCE HISTORY

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OPERATING PROBLEMS/SOLUTIONS:

6.1 SCRUBBER SYSTEMS:

6.2 DEMISTER:

6.3 REHEATER:

6.4 FAN

6.5 SLUDGE SYSTEM:

6.6 REGENERATION SYSTEM:

6.7 BY-PRODUCT SYSTEM:

6.8 OTHER:

6.9 AVAILABILITY:

FLUE GAS DESULFURIZATION MODULES:

FOR EACH MODULE STATE:

(1) PERIOD (MONTH/YEAR) MODULE DOWN

(2) REASON MODULE DOWN

(3) BOILER/HRS. DOWN

(4) MODULE/HRS. DOWN

KISSINGER

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<< END OF DOCUMENT >>

Message Attributes

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Control Number: n/a
Copy: SINGLE
Sent Date: 15-Jan-1977 12:00:00 am
Decaption Date: 01-Jan-1960 12:00:00 am
Decaption Note:
Disposition Action: n/a
Disposition Approved on Date:
Disposition Case Number: n/a
Disposition Comment:
Disposition Date: 01-Jan-1960 12:00:00 am
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Enclosure: n/a
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Film Number: D770016-0147
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Handling Restrictions: n/a
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ISecure: 1
Legacy Key: link1977/newtext/t19770193/baaevbs.tel
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Litigation Codes:
Litigation History:
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To: ALL NATO CAPITALS INFO OECD PARIS MULTIPLE
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